Waste Prevention, Recycling, and Management

This, our fourth annual waste-themed issue of *EM*, offers readers five articles providing insight into important, recent developments in waste prevention and management.
In introducing an entirely waste-themed issue each year, we customarily begin with a brief look back at the waste management practices of our forebears, which provides historical perspective and is always intriguing. This time, we’ll pluck some historical gems from a treatise on “The History of Waste” by Roberta Crowell Barbalace.

Let’s touch briefly upon how organized, municipal waste management evolved over history. In around 500 B.C., the first regulated, municipal waste dump was established in Athens, Greece. Some 2,000 years later, the first U.S. recycling mill began operation in 1690 in Philadelphia, making paper from old rags and recovered paper. However, it took another 200 years before the first waste sorting plant for recycling was established in New York City in 1898. Just prior in 1889, Washington, D.C. noted that it was running out of locations locally for disposing its waste. Does this sound familiar? Today, 130 years later, many large coastal cities in the United States are confronting this very same challenge in their solid waste management planning, resulting in long-distance hauling of post-recycling waste for disposal out of state—not exactly an ode to sustainability.

This month’s EM presents five articles that provide insight into important developments in waste prevention and management. The first, by Susan Robinson, is a follow-on article to one she wrote for EM last year (http://pubs.awma.org/flip/EM-Mar-2019/robinson.pdf) that chronicled China’s sudden ban on the import of recyclable materials, and how the ban was disrupting recycling market conditions worldwide, jeopardizing recycling programs in the United States and Canada. In this updated article, the author describes how the North American recycling industry is now adapting successfully by developing domestic mill capacity to use recyclable materials.

The next two articles—by Lisa Damiano and Heather Little, followed by David Greene and Eric Peterson—acquaint readers with the emerging interest among U.S. landfill operators in upgrading their landfill gas (LFG) to pipeline-quality renewable natural gas (RNG), which is then sold in the natural gas market. For decades, it has been common at landfills to use LFG to fuel engine-generators that produce energy onsite. The motivators for upgrading to RNG production include increased revenue from RNG, lowering of the landfill’s carbon profile, and reduced regulatory compliance burden. However, the future economic viability of RNG in the United States requires increased political commitment to stabilizing the value of the federal renewable energy credits for which RNG qualifies.

The fourth article in this issue shifts readers’ focus from municipal solid waste to a hazardous waste management topic. Soil gas intrusion into buildings (vapor intrusion), including intrusion of radon, methane, and volatile chemicals, can cause health risks to building occupants. Laurent Levy and Christopher Lutes provide a lucid primer on soil gas intrusion into buildings, its risks, and how it is assessed and mitigated.

The final article in this issue returns us to landfills. In his article, Paul Ruehl describes an innovative technique for treating (and stabilizing) the pollutant, polyfluoroalkyl substances (PFAS), which is present in landfill leachate using cement encapsulation. This process enables the treated product to be beneficially used as daily landfill cover.

Many thanks to the authors for their invaluable contributions. We invite EM readers to explore this waste-themed issue and get updated on important new developments in waste recycling, modern landfill management, and preventing vapor intrusion into buildings. 

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